REMARKS

Claims 1-10 are pending in this application. No amendment is made in this Response. The applicants respectfully submit that no new matter has been added. It is believed that this Response is fully responsive to the Office Action dated **February 23, 2007**.

Claims 1-5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoff et al. (U.S. 6,066,394) in view of Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1). (Office action paragraph no. 3)

The rejection is respectfully traversed, and reconsideration is requested.

The Examiner cites the abstract of Hoff et al., which discloses a plasticizer-resistant pressure-sensitive adhesive which is polymerized from components, with the following correspondence between the components of Hoff and the present invention:

Hoff et al. (abstract)	Present claim 1
50-90% C_1-C_{12} alkyl acrylate	50-90% alkyl acrylate or methacrylate
0-40% vinyl unsaturated monomer	9-49% vinyl monomer of which homopolymer has Tg not lower than 80 °C
0.1-10% carboxylic acid funct. monomer	0.2-10% vinyl monomer having carboxyl group
0.1 to 10% internal crosslinking monomer	0.1-5% crosslinkable monomer with MW not less than 280
0-10% hydroxyl funct. monomer	

The Examiner states that the vinyl monomer may be vinyl chloride, and the crosslinking monomers may be allyl glycidyl ether or glycidyl methacrylate. The Examiner states that Hoff et al. differs from claim 1 in the crosslinking monomer used.

The Examiner cites Gyobu et al. for using compounds having epoxy reactive groups, including polytetramethylene glycol diglycidyl ether, allyl ether and glycidyl ether methacrylate (column 9, lines 1-14). Matsumoto et al. is also cited for using epoxy compound including polytetramethylene glycol diglycidyl ether. The Examiner states that it would have been obvious to use polytetramethylene glycol diglycidyl ether as the crosslinker in Hoff et al.:

> "because Gyobu et al. has shown that glycidyl methacrylate is functionally equivalent to polytetramethylene glycol diglycidyl ether and Matsumoto has shown the advantages of adding polytetramethylene glycol diglycidyl ether to resin compositions, and one of ordinary skill in the art would have expected the addition of polytetramethylene glycol diglycidyl ether to work for the emulsion of Hoff et al., motivated by expectation of success."

In traversing the rejection, Applicant first notes that Hoff does not specifically teach that the homopolymer of the vinyl monomer has a Tg not lower than 80°C. The vinyl unsaturated monomer in Hoff et al. is not limited, and is described in column 3, lines 16-20. The examples given in paragraph [0028] of the present specification--acrylonitrile, styrene and methyl methacrylate--are not given as examples in Hoff et al.

The Examiner notes that Hoff et al. does not teach the limitation on the molecular weight of the crosslinking monomer. Hoff's crosslinking monomers are disclosed in column 3, lines 42-51, and none of the examples appears to have MW greater than 280. Allyl glycidyl ether has a MW of 114 and glycidyl methacrylate has a MW of 148.

The Examiner's rejection is based on substituting another crosslinking monomer for the one used in Hoff. However, the Examiner has not substituted an appropriate vinyl monomer meeting the Tg limitation.

With regard to the Examiner's proposed modifications of Hoff et al. based on Gyobu et al. and Matsumoto et al., Applicant notes the following points:

Gyobu discloses a thermoplastic polyester elastomer. The Examiner cites Gyobu et al. for using compounds having epoxy reactive groups, including polytetramethylene glycol diglycidyl ether, allyl ether and glycidyl ether methacrylate (column 9, lines 1-14). However, the "compounds having epoxy groups" are stated to be possible "additives" to a composition including the thermoplastic polyester elastomer (column 3, lines 39-47). The reference states:

> "Furthermore, the present invention provides a composition comprising the above thermoplastic polyester elastomer of the present invention, and at least one additive selected from the group consisting of antioxidants, light stabilizers, lubricants, fillers, compounds having at least one epoxy group, compounds having a phenyl group which is substituted with at least one halogen atom, flame retarding aids, and compounds having a triazine group and derivatives thereof."

That is, the "compounds having at least one epoxy group" are not required, and are only one of many possible additives.

Moreover, Gyobu **does not state the purpose** of the "compounds having at least one epoxy group." In addition, the Examiner states that Gyobu has shown that glycidyl methacrylate is "functionally equivalent" to polytetramethylene glycol diglycidyl ether. **However, Applicant can find no such teaching in Gyobu.** Gyobu simply lists these two compounds as exemplary "compounds having epoxy groups" to be used as the "**additive**."

Applicant submits that Gyobu's system is chemically very different from that of Hoff. There is clearly no disclosure in Gyobu of use of polytetramethylene glycol diglycidyl ether in a system such as that in Hoff et al. (i.e., a vinyl polymerization reaction), and this compound is **not referred**

to in Gyobu as a crosslinking monomer. Applicant therefore argues that there is **no suggestion or motivation** in Gyobu for substituting polytetramethylene glycol diglycidyl ether for Hoff's crosslinking monomer. In this regard, Applicant also notes that Gyobu et al. is directed to a thermoplastic polyester elastomer, which is not clearly applicable to and adhesive such as in Hoff.

The Examiner cites Matsumoto et al. '943 as disclosing use of epoxy compound (F), examples of which are given in column 13, lines 24-47, and polytetramethylene glycol diglycidyl ether is listed as one example. However, Matsumoto's composition is generally a resin comprising (A) a polycarbonate resin and (B) an aromatic polyester resin. Epoxy compound (F) is listed as an additional component that can be added for solvent resistance, heat stability and prevention of discoloration (column 2, lines 55-60; column 13, lines 6-11 and 32-33). However, it is not clear how epoxy compound (F) imparts this property, and there is no disclosure of compound (F) being used as a crosslinking monomer in a vinyl polymerization, such as that in Hoff. Therefore, there is **no suggestion or motivation** in Matsumoto for substituting polytetramethylene glycol diglycidyl ether for Hoff's crosslinking monomer.

To summarize: 1) There is no disclosure in Hoff for the Tg limitation on the homopolymer of the vinyl monomer; 2) there is no suggestion or motivation for the combination of Hoff with Gyobu; 3) there is no suggestion or motivation for the combination of Hoff with Matsumoto '943.

Applicant further notes that the criticality of the limitation that the homopolymer of vinyl saturated monomer have a Tg not lower than 80°C is well established in the specification. The Tg requirement is necessary to make the polymer not become too soft to prevent the reduction of the

strength and the development of unnecessary tackiness (page 11, lines 10-12 of the present specification). This result is completely unexpected over Hoff et al., in particular in view of the fact that Hoff discloses pressure sensitive acrylic adhesives, in which tackiness is presumably desirable.

Moreover, the criticality of the limitation that the molecular weight of the crosslinkable monomer is also established in the specification. See paragraph [0034], which discloses the effect on the touch and feeling or strength of the molded article, and Comparative Examples 3 and 5 in Table 1 on page 25 of the present specification. This effect is clearly unexpected over Hoff, again, in particular, in view of the fact that Hoff discloses pressure sensitive adhesives.

Claims 1-5 and 7-8 are therefore not obvious over Hoff et al. '394, Gyobu et al. '560 and Matsumoto et al. '943, taken separately or in combination.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (JP 10046099A) in view of Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1). (Office action paragraph no. 4)

The rejection is respectfully traversed, and reconsideration is requested.

The Examiner cites Matsumoto JP '099 as disclosing an emulsion comprising 30-95% alkyl (meth)acrylate, 5-70% styrene and 0.5 to 10% unsaturated carboxylic acid. The styrene is considered to meet the limitation of the vinyl polymer in the present claims, since the present specification states that styrene meets the homopolymer Tg limitation. The Examiner cites paragraph [0008] as disclosing a compolymerizable monomer such as glycidyl (meth)acrylate.

The Examiner states that Matsumoto JP '099 is "silent with respect to the crosslinker polytetramethylene glycol diglycidyl." Gyobu et al. and Matsumoto et al. '943 are then cited as in the rejection in Office action paragraph no. 5, and the Examiner states that it would have been obvious "to use polytetramethylene glycol diglycidyl ether as a crosslinker" because of the teachings of Gyobu et al. and Matsumoto et al.

In traversing the rejection, Applicant argues that there is no suggestion or motivation for this combination of Matsumoto '099 with Gyobu et al. and Matsumoto '943.

The present rejection is apparently based on the substitution of polytetramethylene glycol diglycidyl ether for the glycidyl (meth)acrylate cited by the Examiner in paragraph [0008] of Matsumoto JP '099. However, the glycidyl (meth)acrylate is simply listed as being a "monomer copolymerizable in addition to monomers," that is, another copolymerizable monomer in the vinyl polymerization disclosed in Matsumoto JP '099. Matsumoto JP '099 does not indicate that this is a crosslinker, and, as noted above, Gyobu et al. and Matsumoto '943 do not refer to polytetramethylene glycol diglycidyl ether as a crosslinker. The Examiner's stated motivation for the substitution is therefore improper.

Again, Applicant notes that Gyobu et al. does **not** state that "glycidyl methacrylate is functionally equivalent to polytetramethylene glycol diglycidyl ether," as the Examiner contends in the rejection. Moreover, the present specification provides evidence that these are **not** equivalent. With glycidyl methacrylate, the purpose of the present invention cannot be attained (see paragraph [0034], Comparative Examples 3, 5 in Table 1 on page 25 of the present specification).

Moreover, as noted above, Gyobu et al. and Matsumoto '943 do not generally disclose the use of polytetramethylene glycol diglycidyl ether in any reaction similar to that in Matsumoto JP '099, and these reference provide no suggestion for adding this compound to the reaction mixture in JP '099.

Claims 1-8 are therefore not obvious over Matsumoto et al. (JP 10046099A) Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1), taken separately or in combination.

Claims 1 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komori (JP 2002088343 A) in view of Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1). (Office action paragraph no. 5)

Komori is cited for disclosing an emulsion comprising 85.5 to 98.88% alkyl acrylic ester, 1-10% acrylonitrile, 0.1 to 5% α,β-unsaturated carboxylic acid, and 0.02 to 0.5% ethylenically unsaturated polyfunctional crosslinker. The Examiner implies that this meets the limitations of claim 1 except for the limitation on the crosslinkable monomer. Gyobu et al. and Matsumoto et al. '943 are cited as in the above rejections to provide a motivation to substitute polytetramethylene glycol diglycidyl ether for Komori's crosslinker.

In traversing this rejection, Applicant argues, similarly to the arguments against the above rejections, that there is no suggestion or motivation in Gyobu et al. or Matsumoto et al. '943 for the substitution of polytetramethylene glycol diglycidyl ether for the glycidyl methacrylate in Komori. Applicant's above arguments, that these two compounds are **not** equivalent, and that there is no suggestion in the references for this substitution, are applicable here. As noted above, with low

molecular weight monomers such as the glycidyl methacrylate or glycidyl acrylate in Komori et al, the purpose of the present invention cannot be attained.

Claims 1 and 4-8 are therefore not obvious over Komori (JP 2002088343 A), Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1), taken separately or in combination.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoff et al. (U.S. 6,066,394) or Komori (JP 2002088343 A) or Matsumoto et al. (JP 10046099 A) each individually, in view of Gyobu et al. (U.S. 6,242,560 B1) and Matsumoto et al. (U.S. 6,174,943 B1) as applied to claims mentioned above, and further in view of Masaru et al. (JP 06-079737). (Office action paragraph no. 6)

The rejection is respectfully traversed, and reconsideration is requested.

Hoff et al., Komori, Matsumoto et al. JP '099, Gyobu et al. and Matsumoto et al. '943 are cited as in the above rejections. Masuro et al. is cited only for the disclosure of making a glove by immersing a mold in a resin emulsion.

Since Masuro et al. does not provide a further teaching, suggestion or motivation for the limitations of base claim 1, Applicant's above arguments regarding obviousness over the combination of Hoff, Komori, Matsumoto '099, Gyobu, and Matsumoto '943 argue against the present rejection.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicant's undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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